

WHAT IS CLAIMED IS:

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1. A device for passing fluid in a vessel while preventing emboli in the fluid from passing through the vessel, comprising:

a guide wire having a proximal and distal end;

a sheath attached to the guide wire near its distal end;

5 a tubular shaft member having a proximal and distal end which is movable along the guide wire in a co-axial arrangement; and

10 a filtering assembly attached to the tubular shaft member which is movable between a collapsed and expanded position, the filtering assembly being constricted within the sheath while in the collapsed position and expanded within the vessel when released from constriction within the sheath to become disposed against the vessel to pass fluid in the vessel while blocking the passage of emboli in the vessel.

2. The filtering device of claim 1, wherein:

the filter has a plurality of spines disposed in annularly spaced relationship to one another and has a filter member attached to the spines.

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3. The filtering device of claim 2, wherein:

the spines are formed from a material having shape memory for disposition against the vessel when released from the sheath and

the filter member is formed from a material having properties of

5 passing the fluid in the vessel while blocking the passage of emboli in the vessel.

4. The filtering device of claim 1, wherein:

the filtering assembly become disposed within the sheath when the tubular shaft member becomes disposed within the sheath.

5. The filtering device of claim 1, wherein:

the filtering assembly is self deploying.

6. The filtering device of claim 2, wherein:

the spines are self expanding.

7. The filtering device of claim 2, wherein:

the tubular shaft member has a recess for housing the splines

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8. The filtering device of claim 1, wherein:  
the sheath is made from a polymer and has a length to ensure that  
all of the emboli remain in the sheath when the filtering assembly is moved from the  
expanded position back into the collapsed position within the sheath.

9. The filtering device of claim 1, wherein:  
the filtering assembly has a length to ensure that all of the emboli remain in the filter member when the filtering assembly is moved from the expanded position back into the collapsed position within the sheath.

the filtering assembly has a memory for expanding against the vessel when the tubular shaft member and filtering assembly are displaced relative to the sheath so that they are no longer housed within the sheath.

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11. The filtering device of claim 1, wherein:

the tubular shaft member is made from a material having flexible properties and properties of withstanding buckling,

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12. The filtering device of claim 1, wherein:

the sheath has a flexibility and shape dependent upon the characteristics of the tortuous anatomy through which the sheath passes.

13. The filtering device of claim 1, wherein:

the filtering assembly has a plurality of splines which are made from a resilient material capable of withstanding buckling and which are spaced angularly from one another and which are provided with a memory for expansion to a particular configuration and which are covered with a filter member.

14. The filtering device of claim 1, wherein:

the sheath has distal and proximal ends, the distal end of the sheath being attached to a guide wire and the proximal end having a opening for receiving the filtering assembly.

15. The filtering device of claim 14, wherein:  
the proximal end opening of the sheath is flared outward.

16. The filtering device of claim 1, wherein:  
the tubular shaft member is made from hypotube formed from a  
nickel titanium alloy.

17. A method of passing fluid in a vessel and of preventing emboli in  
the fluid from passing through the vessel from a lesion in the vessel, including the  
steps of:

providing a filtering assembly having constricted and expanded  
positions and having properties in the expanded position of passing fluid while  
blocking the passage of emboli from the lesion,

disposing the filtering in a sheath attached to a guide wire in the  
constricted position with the filtering assembly disposed in the sheath and movable  
relative to the sheath,

positioning the filtering assembly and the sheath in the vessel at a  
position past the lesion in the direction of the fluid flow in the vessel,

15 interventional device while the filtering assembly remains in the expanded

relationship to provide for the operation of the filtering assembly in passing the fluid while blocking the passage of emboli created during the expansion of the opening in the vessel.

withdrawing the sheath and the filtering assembly from the vessel

after the disposition of the filtering assembly in the sheath with the emboli disposed within the filtering assembly.

the filtering assembly is disposed in a fixed relationship on a

hypotube,

the hypotube is made from a flexible material having properties

of withstanding buckling, and

the distal end of the hypotube becomes disposed within the

sheath when the filtering assembly is placed into the sheath.

20. A method as set forth in claim 19, wherein:

the filtering assembly is formed from angularly spaced splines  
formed from a resilient material capable of withstanding buckling, and

the splines are covered with a filter member made from a material  
having properties of passing the fluid while blocking the passage of the emboli in the  
fluid.

21. A method as set forth in claim 17, wherein:

the filtering assembly is disposed in a fixed relationship on a  
hypotube,

the hypotube is made from a flexible material having properties  
of withstanding buckling, and

the distal end of the hypotube becomes disposed within the  
sheath when the filtering assembly is placed into the sheath.

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